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## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schneider, Jr.; William A.	Houston	TX	N/A	N/A

## ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Exxon Production Research Company	Houston	TX	N/A	N/A	02

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US-CL-CURRENT: 367/38, 367/54, 702/17

FIELD-OF-SEARCH: 367/38; 367/54 ; 367/36 ; 364/421

## REF-CITED:

## U.S. PATENT DOCUMENTS

PAT-NO ISSUE-DATE PATENTEE-NAME US-CL

<u>4101867</u>	July 1978	Martin	340/15.5TC	N/A	N/A
<u>4695984</u>	September 1987	Paal	367/54	N/A	N/A
<u>4887244</u>	December 1989	Willis et al.	364/421	N/A	N/A
<u>4918670</u>	April 1990	Wang	367/38	N/A	N/A
<u>4943918</u>	July 1990	Young	364/421	N/A	N/A
<u>4992993</u>	February 1991	Chambers	364/421	N/A	N/A
<u>5103429</u>	April 1992	Gelchinsky	367/38	N/A	N/A
<u>5136550</u>	August 1992	Chambers	367/38	N/A	N/A
<u>5136553</u>	August 1992	Kelly et al.	367/52	N/A	N/A

"Submarine canyons: Velocity replacement by wave-equation datuming before stack"; John R. Berryhill; Geophysics, vol. 51, No. 8 (Aug. 1986); pp. 1573-1579.

"Efficient migration through complex water-bottom topography"; Walt Lynn, Scott MacKay, Craig, J. Beasley: Geophysics, vol. 58, No. 3, (Mar. 1993); pp. 393-398.

"Improving Velocity Analysis beneath a Submarine Canyon using Velocity Redatuming"; Peter Stickland, Greg Beresford, Dylan Mair; Exploration Geophysics (1991), vol. 22, pp. 583-590.

"Prestack layer replacement"; Oz Yilmaz, Darran Lucas; Geophysics vol. 51, No. 7 (Jul. 1986); pp. 1355-1369.

OTHER  
PUBLICATIONS

"3-D Reflection Synthetic Seismograms"; Miles J. Kuhn; 13th Annual Offshore Technology Conference, 1981 Proceeding, vol. III, 4065-4115.

"Offset Dependent Static Corrections on a Continental Shelf Edge 3D Seismic Survey"; M. G. Cousins, P. M. Whiting, T. J. Allen; Exploration Geophysics (1991), vol. 22, pp. 75-80.

Schneider, Jr., William A.; Phillip, Lindy D.; and Paal, Ernest F., "Wave-equation velocity replacement of the low-velocity layer for overthrust-belt data", Geophysics, 60, pp. 573-579. Mar. 1995.

ART-UNIT: 221

PRIMARY-EXAMINER: Carone; Michael J.

ASSISTANT-EXAMINER: Wesson; Theresa M.

ABSTRACT:

A method of geophysical prospecting wherein nonhyperbolic distortion is reduced from marine seismic data, or land seismic data over a low seismic velocity layer, is disclosed. The method comprises replacing the seismic velocity of the water or low seismic velocity layer with sediment seismic velocity and using analytic ray tracing to determine a mapping function to correct recorded seismic data for removal of the distortion, which occurs because of the high seismic velocity contrast at the water or low seismic velocity layer.

16 Claims, 8 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 4

	U	1	Document ID	Issue Date	Pages	Title	Current OR
1	<input type="checkbox"/>	<input type="checkbox"/>	US A1 20020013687	20020131	97	Methods and systems for simulation-enhanced fracture detections in sedimentary basins	703/10
2	<input type="checkbox"/>	<input type="checkbox"/>	US 6125330 A	20000926	16	Method of determining the response caused by model alterations in seismic simulations	702/14
3	<input type="checkbox"/>	<input type="checkbox"/>	US 5844799 A	19981201	12	Method for simulating the filling of a sedimentary basin	702/2
4	<input type="checkbox"/>	<input type="checkbox"/>	US 5729451 A	19980317	19	Apparatus and method for fusing diverse data	702/12
5	<input type="checkbox"/>	<input type="checkbox"/>	US 5583825 A	19961210	41	Method for deriving reservoir lithology and fluid content from pre-stack inversion of seismic data	367/31

	Current XRef	Retrieval Classif	Inventor	S	C	P	2	3	4	5
1			Ortoleva, Peter J.	<input checked="" type="checkbox"/>	<input type="checkbox"/>					
2			Robertson, John Olof Anders et al.	<input checked="" type="checkbox"/>	<input type="checkbox"/>					
3	703/6		Joseph, Philippe et al.	<input checked="" type="checkbox"/>	<input type="checkbox"/>					
4	703/2		Gibbs, Bruce P. et al.	<input checked="" type="checkbox"/>	<input type="checkbox"/>					
5	367/83; 702/13; 702/17; 702/85		Carrazzone, James J. et al.	<input checked="" type="checkbox"/>	<input type="checkbox"/>					

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1	US 20020013687	<input type="checkbox"/>
2	US 6125330	<input type="checkbox"/>
3	US 5844799	<input type="checkbox"/>
4	US 5729451	<input type="checkbox"/>
5	US 5583825	<input type="checkbox"/>